THE GENUS MYRMICOTROMBIUM WOMERSLEY 1934 (ACARINA, ERYTHRAEIDAE), WITH REMARKS ON THE SYSTEMATICS OF THE ERYTHRAEOIDEA AND TROMBIDIOIDEA

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Text fig. 1-2

SUMMARY

The genus *Myrmicotrombium* Womersley 1934, with genotype (monotypic) *M. brevicristatum* Wom. 1934 is restudied, the holotype male being redescribed, as well as some details of the adult female and nymph. The mite, although having some features suggestive of the Smarididae, belongs to the Erythraeidae, and not to the Trombididae, in which it was placed by its author. The species is now recorded from Australian Capital Territory, as well as South Australia. On two occasions it has been captured in association with ants, but its relation to ants (if any) is at present conjectural.

A specimen from Burma is also referred to this genus.

The systematics of the Erythraeidae (Erythraeoidea) and of some of the Trombidioidea are referred to. Feider's (1955) subfamily Myrmicotrombiinae, erected within the Trombidioidea, cannot stand. The genus however merits a subfamily within the Erythraeidae, and hence the subfamily Myrmicotrombiinae n. sf. is erected within that family, and compared with the other subfamilies of the Erythraeidae, namely the Erythraeinae n. sf., Leptinae n. sf., Callidosominae n. sf. and Balaustiinae n. sf. (Balaustiidae Grandjean 1947), which are keyed.

INTRODUCTION

In 1934 Womersley described and figured as a new genus and species of mite *Myrmicotrombium brevicristatum*, placing it within the family Trombidiidae. This was described from "a single specimen collected with ants at Glen Osmond, South Australia, September 11, 1933", collected by himself. In 1937 Womersley, in revising the systematics of the Australian Trombidiidae, referred again to that genus and species, placing it within the subfamily Johnstonianinae Thor 1935. In 1947 Thor and Willman issued a monograph on the family Trombidiidae, and followed Womersley in the systematic placing of this mite, as have Baker and Wharton (1952). In a systematic account of the Trombidioidea (this term corresponding to the Trombidiidae of the previous authors mentioned)

Feider (1955) has erected a subfamily Myrmicotrombiinae to accommodate it, placing that subfamily in the family Stigmotrombidiidae (1) Feider 1955, Seria Sagittotrombidiinae Feider 1955, along with the subfamilies Tanaupodinae Thor 1935, Calothrombiinae Oudemans 1947 (in Thor and Willmann), Johnstonianinae Thor 1935 and Notothrombiinae Oudemans 1947 (in Thor and Willmann).

In extensive collecting of Acarina at Glen Osmond, South Australia, and surroundings, directed particularly towards the families Erythraeidae, Trombidiidae and Smarididae, from 1933 onward (see Southcott 1946b) the writer captured a species of mite corresponding to Womersley's description, on rare occasions. However this mite was found to belong to the Erythraeidae and not to the Trombidiidae. In life light pink plumose setation gives it a Trombidiid facies. Examination of the type specimen of *Myrmicotrombium brevicristatum* Wom. 1934 in the South Australian Museum collection, in 1945 showed that these specimens were of the same species. Mr. Womersley has agreed with the writer that the species should be placed in the Erythraeidae.

Redescription of **Myrmicotrombium brevicristatum** Wom. 1934

Fig. 1-2

Adult (Fig. 1 A-D; 2). Colour in life light pink.

The holotype (male) (mounted) with body ovoid, 950μ long to tip of rostrum of chelicerae (mouth cone), 540μ wide. Eyes present, one on each side, almost circular, 22-24μ across, placed anteriorly on the propodosoma. In the midline, anteriorly on the dorsum, is a short crista, with two sensillary areas. The anterior sensillary area is placed shortly behind the eyes. It has a blunt indistinct "nasus", and is 30μ long by 21μ wide, and is provided with two very finely ciliated tapering sensillary setae, 30-32μ long. Anterior sensillae bases 11μ apart. In addition the anterior sensillary area carries 4 typical dorsal setae, 20-23μ long. Posterior sensillary area pear-shaped, 24μ long by 22μ across, with two sensillary setae similar to the anterior, 42μ long; sensillae bases 11μ apart. Crista distinct, entirely behind the eyes (see Figs. 1A, 2). Distance between anterior and posterior sensillae bases (centres) 65μ (intersensillary distance).

The dorsum of the body is provided with a bushy covering of heavily ciliated setae, of two distinct types and sizes. The larger setae are spathulate and heavily ciliated, 28-42μ long and 11-15μ wide where

(1) This family name proposed by Feider has no status as there is no genus with root Stigmotrombidi— on which it should be based. The same applies to the family Peritremotrombidiidae Feider 1955.

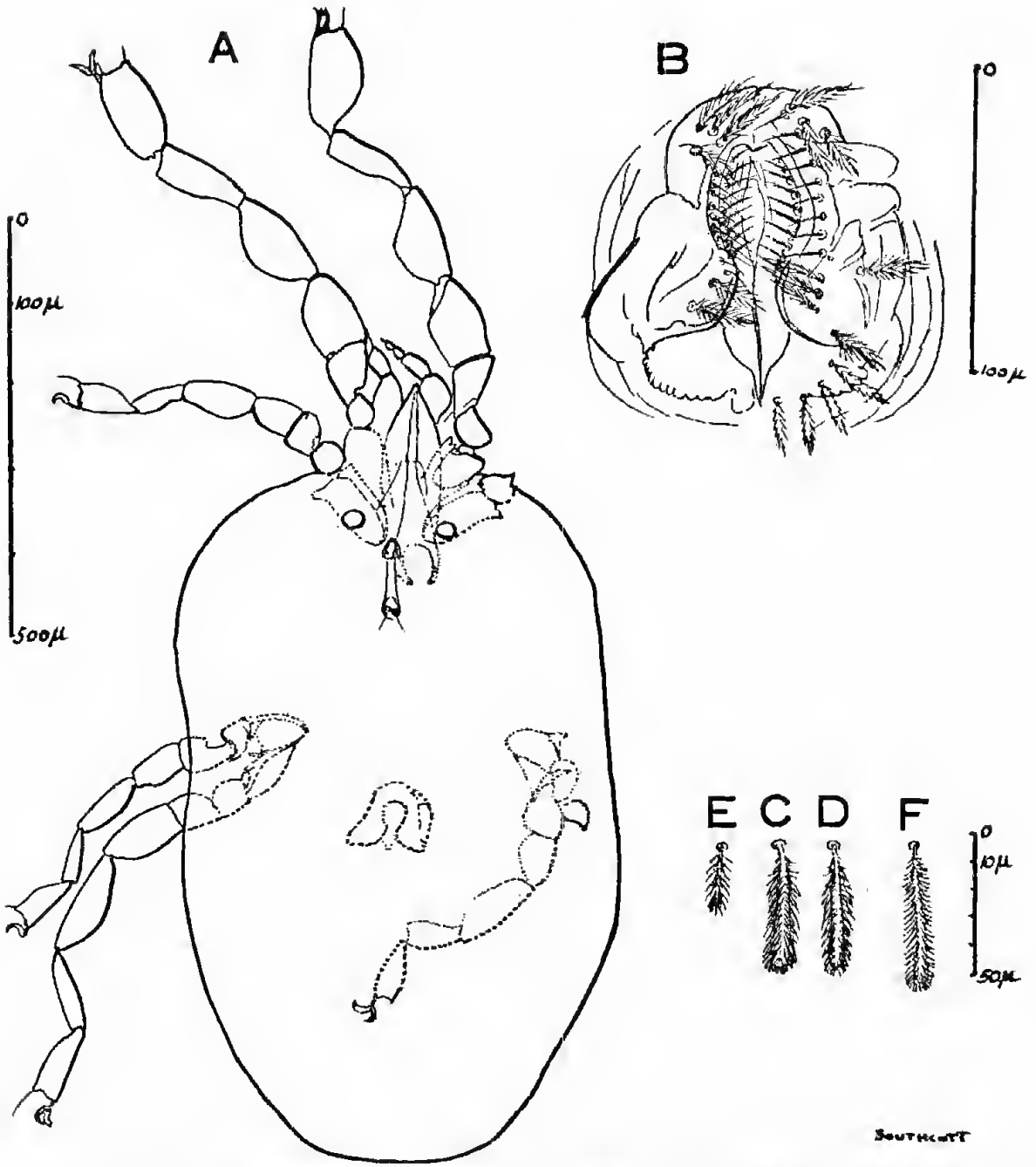

Fig. 1. *Myrmicotrombium brevieristatum* Womersley 1934; A-D adult male, holotype: A entire specimen, setae omitted (except supra-onychial papillae and setae). Legs II and III on the right hand side detached. Internal and ventral structures shown in stipple; B external genitalia and adjacent chitinous part of internal genitalia, male, showing labia majora and labia minora; C dorsal seta (spathulate type), from above; D same, below; E dorsal seta, shorter type; F nymph, dorsal seta, spathulate type (all setae to scale on right).

expanded. The ciliations are stiff, oblique and sharp-pointed, and change direction along the course of the seta, being more outstanding toward each end of the seta (Fig. 1 C). These seta show a slight inferior keel. The setae originate from a minute seta base, as is usual in the Erythraeidae; the seta base is 2.5μ wide. The smaller are more

numerous, and the larger spathulate setae are interspersed among them. The smaller setae are practically uniform in structure throughout their length, non-expanding, more slender, somewhat more flaccid, densely (and somewhat flaccidly) ciliated, setae 18-25μ long (Fig. 1 E).

Venter with setae similar to the smaller dorsal setae, but these slightly larger and with more outstanding ciliations. The male genitalia are of typical Erythraeid type, with outer and inner lips as figured (Fig. 1 B) (*labia majora* and *labia minora*) respectively. There are no genital suckers.

Legs as figured. Leg I fairly stout, others somewhat more slender, however all the legs have a lumpy angular appearance, with the genua bellied (Fig. 1 A). Each tarsus carries above the claws, at its distal end, a projecting supra-onychial papilla and bristle, clearly tactile in function (two being present on each tarsus I). The tactile bristles curved and spiniform; on leg I 28μ long, on II 30μ, on III 28μ, on IV 30μ. Tarsus I 127μ long by 64μ high, II 70μ x 36μ, III 74μ x 36μ IV 91μ x 36μ Metatarsus (tibia) I 120μ long, II 74μ, III 77μ, IV 107μ. In their proximal parts the legs are provided with plumose setae similar to the body setae (Fig. 2); among these are short spiniform sensory setae usual for the Erythraeidae (some are shown in Fig. 2 on the (telo-) femur I and genu I. These sensory setae are more common on the more distal parts of the legs, and constitute terminally about 50% of the setae.

Chelicerae styliform, as figured, with the usual Erythraeid feature of the cheliceral stylets at the tip of the mouth cone. Posteriorly the gnathosomal endoskeleton ends within the body in the typical posterior cornua or "forceps" of the Erythraeidae (shown in Figs. 1 A, 2). There is no sign of any extrusile tube to the gnathosoma, as occurs in the Smarididae. The palpi are slender, with chaetotaxy as figured (Fig. 2). By the slender appearance the palpus suggests the Smarididae rather than the Erythraeidae. There are no specific features suggestive of the Trombidiidae.

The *adult female* is similar to the male, but the dorsal setae are longer, to 55μ long with the larger type (spathulate) setae (allotype female from Morialta, South Australia, 9th October 1944, collected by H. Womersley, in the collection of the South Australian Museum); not figured.

Nymph (Fig. 1 F) (specimen from Black Mountain, Canberra, Australian Capital Territory, 19th October 1944, under stones, collected H. Womersley, in the collection of the South Australian Museum. Although

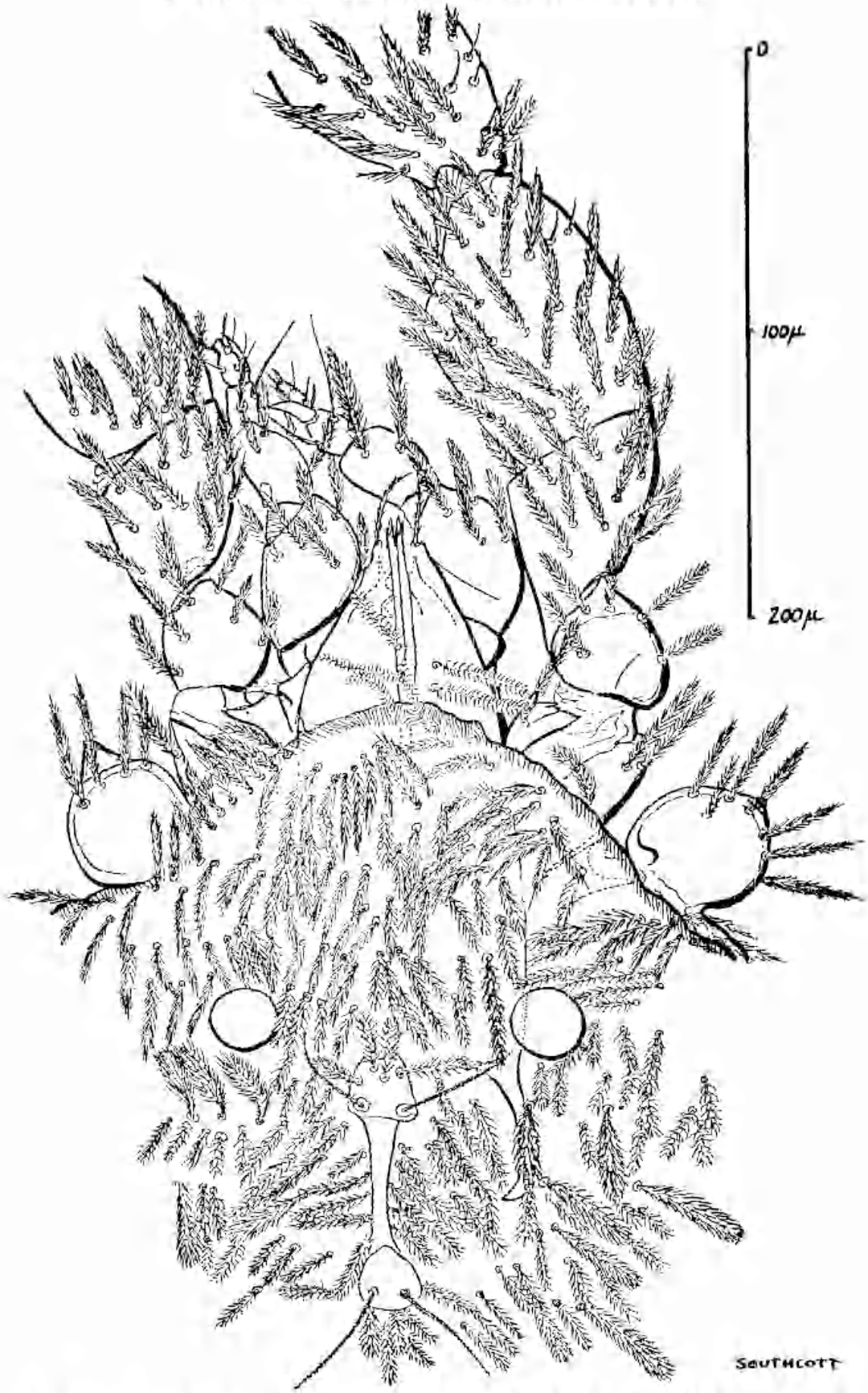

Fig. 2. *Myrmicotrombium brevicristatum* Womersley 1934; adult male, holotype, showing anterior part of dorsum of body, including crista and eyes, as well as the gnathosoma and palpi, and part of the anterior legs. To the right of the crista is shown the right posterior horn of the gnathosoma (subcuticular).

rather damaged the following particulars may be given from the mounted specimen:)

Of the same general structure and setation as the adult, but the longer (spathulate) dorsal setae more slender, to 55μ long. The tarsi of the feet are proportionately higher than in the adult. Tarsus I 120μ long x 70μ high, II 66μ x 38μ, III 74μ x 36μ, IV 85μ x 34μ Metatarsus I 135μ long, II 83μ, III 84μ, IV 108μ.

Localities. South Australia: Glen Osmond, 11 September 1933, with ants, male (holotype) (H. Womersley); Glen Osmond, in dead pine needles, March 1935, one specimen, male (R. V. S.); Glen Osmond, 7 May 1939, in soil at base of *Eucalyptus cladocalyx*, one specimen (R. V. S.); Brown Hill Creek, 19th June 1938, with ants, one specimen (J. S. Womersley); Morialta, 9th October 1944, one specimen, female, allotype (H. Womersley).

Australian Capital Territory: Black Mountain, Canberra, under stones, 19th October 1944, three specimens, including one nymph (H. Womersley).

Myrmicotrombium sp.

In the South Australian Museum collection is a slide of a specimen that can be referred to this genus, labelled "Nganyawa, 9 December 1946, in soil" (Burma: name of collector not given). No other information is recorded about it.

Unfortunately the specimen is in a very damaged condition, and is unsuitable for description. The spathulate dorsal setae are up to 38μ long, and the ciliations of these are possibly somewhat longer and stronger than in the *M. brevicristatum* specimens seen. Whether this is of any significance cannot be stated at present.

Biology of **Myrmicotrombium brevicristatum.**

On two occasions this species has been recorded in the company of ants (species of latter not stated). The original of these, as indicated above, is reflected in the generic name. Its life history is unknown. It has been observed only in superficial layers of soil or vegetable litter or under stones. Whether there is any association with ants, other than accidental, is not known.

The Affinities of the Genus **Myrmicotrombium.**

As is indicated in the description, from its styliform exsertile chelicerae, the genus belongs to the Erythraeidae and not to the Trombidiidae. Womersley was misled by its Trombidiid facies, and later writers had perforce to follow him, as none of them saw any specimens.

The genus is unique among the Erythraeidae in having the eyes placed entirely in front of the crista. In this character the genus resembles the genera *Smaris* Latreille 1796 (= *Sclerosmaris* Grandjean 1947) and *Fessonia* von Heyden 1826 (= *Œcosmaris* Grandjean 1947) of the Smarididae, but no previously described Erythraeidae. Another feature suggesting affinities with the Smarididae is the presence of the tactile bristle arising from a distinct papilla above the tarsal claws (supra-onychial papilla and seta). This is a highly developed feature in some of the Smarididae, *e.g.* the genera *Smaris* Latreille 1796 and in *Hirstiosoma* Womersley 1934 (= *Smaris* Grandjean 1947 *non* Latreille 1796) and to a lesser extent in *Fessonia* von Heyden 1826, where they are ciliated. Such setae are also present in some of the Erythraeidae.

Despite its affinities with the Smarididae, there is no trace of an extrusile collar by which the gnathosoma can be projected in front of the body, hence the genus belongs to the Erythraeidae.

Feider (1955) has erected a subfamily Myrmicotrombiinae in the family Trombidiidae (s.l.) monotypic for *Myrmicotrombium* Womersley 1934, which he grouped with the subfamilies Johnstonianinae and Notothrombidiinae, in his "Infraseria" Duplicitrombidiinae Feider 1955 (of his "Seria" Sagittotrombidiinae Feider 1955, family Stigmotrombidiidae Feider 1955). While it is not the purpose of the present article to deal with the systematics of the Trombidioidea, it is clear that the subfamily Myrmicotrombiinae Feider 1955, by definition cannot stand. It is however apparent that the characters of the genus *Myrmicotrombium* merit subfamily status within the Erythraeidae. The most important character is the placing of the eyes entirely in front of the crista, and on this character the writer proposes the subfamily Myrmicotrombiinae n. sf. (*non* Feider 1955). This subfamily possibly forms a connecting link between the Smarididae and the Erythraeidae (2). It is not proposed to deal with the systematics of the Erythraeidae at any length in the present article (these will be considered in a separate paper), but it is thought desirable to indicate here the relations of the Myrmicotrombiinae to the other subfamilies of the Erythraeidae. These may be separated as in the following key to the adult forms:

1. Two eyes on each side ..... Erythraeinae n. sf.
   One eye on each side ..... 2.
2. (1) Metatarsi (tibiae) of adults and nymphs with a pair of tubercles at the distal end dorsally .....
   ..... Callidosominae n. sf.
   Metatarsi (tibiae) without tubercles ..... 3.

(2) These two families constitute the superfamily Erythraeoidea, a term introduced by Grandjean (1947a) to replace the "Suborders" Apobolostigmata Oudemans 1909.

3. (2) Eyes entirely in front of the crista or cristal areas ..... Myrmicotrombiinae n. sf. *non* Feider 1955
Eyes between levels of anterior and posterior sensillary areas of crista ..... 4.

4. (3) Eyes anterior to middle of crista ..... Leptinae n. sf.
Eyes behind middle of crista ..... Balaustiinae n. sf.

The subfamilies Erythraeinae, Callidosominae, Myrmicotrombiinae, Leptinae and Balaustiinae proposed above are based on the genera *Erythraeus* Latreille 1806, *Callidosoma* Womersley 1936, *Myrmicotrombium* Womersley 1934, *Leptus* Latreille 1796 and *Balaustium* von Heyden 1826 respectively. The genus *Balaustium* is used in the sense of Grandjean (1947b). The subfamily Balaustiinae nov. is proposed in place of Balaustiidae Grandjean 1947 (Grandjean 1947a).

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